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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,902	08/07/2003	Shalei Dong	15540-008001 / 18.00356/D	7799
26161	7590	08/19/2004	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			THOMAS, BRANDI N	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/635,902	Applicant(s) DONG ET AL. AK	
	Examiner Brandi N Thomas	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/13/04</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> . |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. Acknowledgement is made of receipt of Information Disclosure Statement(s) (PTO-1449) filed 3/18/04. An initialed copy is attached to this Office Action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9, 14, 16-18, and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over German (4723075) in view of Richardson (5061841).

Regarding claims 1 and 21, German discloses, in figures 1 and 3, a holder (20) for mounting an optical element (M); a motor (32) for rotating the holder (20) upon which the optical element (M) may be mounted except that it does not show that when the laser beam impinges on the optical element, a point of impingement of the laser beam on the optical element is varied when the point of impingement of the laser beam on the optical element is radially separated from an axis of rotation of the optical element. Richardson shows, in figures 35 and

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36, that it is known to provide a laser beam (1526) impinges on the optical element (1534) for forming an image on an image plane (col. 101, lines 40-52). Therefore it would have been obvious to someone of ordinary skill in the art at the time the invention was made to combine the device of German with the laser beam impingement of Richardson for the purpose of forming an image on an image plane (col. 101, lines 40-52). Richardson does not specifically disclose that a point of impingement of the laser beam on the optical element is varied when the point of impingement of the laser beam on the optical element is radially separated from an axis of rotation of the optical element. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the point of impingement would vary when separated from an axis of rotation of the optical element for the purpose of rotating the optical element to different inclination angles would alter the point in which the optical element is being struck.

Regarding claims 2 and 22, German discloses, in figures 1 and 3, wherein the motor (32) is adapted for rotating continuously the holder (20) upon which the optical element (M) may be mounted (col. 4, lines 50-55).

Regarding claim 3, German discloses, in figures 1 and 3, an optical element (M) mounted to a rotatable optical element holder (32) (col. 4, lines 50-55).

Regarding claim 4, German discloses an optical element (M) mounted onto the holder (32) but does not specifically disclose the optical element being glued to the holder. It would have been obvious to use glue to mount the optical element in the holder for the purpose of securing the optical element in a determined position.

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Regarding claim 5, German discloses, in figures 1 and 3, wherein the holder (20) has an outer edge upon which the optical element abuts but does not specifically disclose a depression in its center filled with adhesive. However, it would have been obvious to fill the center with an adhesive for the purpose of retaining the optical element in the holder.

Regarding claim 6, German discloses the claimed invention except for the optical element projecting radially outwardly over the holder. It would have been obvious to make the optical element project over the holder, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art (In re Rose, 105 USPQ 237, (CCPA 1955)). It would have been obvious to one of ordinary skill in the art at the time the invention was made make the optical element project over the holder for the purpose an easier accessibility to impinge the laser onto the optical element.

Regarding claims 7 and 23, German discloses wherein the motor is a stepper motor (32) (col. 4, line 50).

Regarding claims 8 and 24, Richardson discloses wherein the laser beam impinges on the optical element at an inclination angle (col. 11, lines 59-62).

Regarding claims 9 and 25, Richardson discloses wherein the inclination angle is approximately 45° (col. 11, line 62).

Regarding claim 14, German discloses wherein the optical element is a mirror (col.4, lines 50-55).

Regarding claim 16, German discloses that the optical element is a mirror (col.4, lines 50-55) except for the optical element projecting radially outwardly over the holder. It would

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have been obvious to make the optical element project over the holder, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art (*In re Rose*, 105 USPQ 237, (CCPA 1955)). It would have been obvious to one of ordinary skill in the art at the time the invention was made make the optical element project over the holder for the purpose an easier accessibility to impinge the laser onto the optical element.

Regarding claim 17, Richardson discloses wherein the laser beam impinges on the optical element at an inclination angle (col. 11, lines 59-62) and wherein the optical element is a mirror (col. 11, lines 59-60).

Regarding claim 18, Richardson discloses wherein the inclination angle is approximately 45° (col. 11, line 62).

5. Claims 10-13, 15, 19, 20, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over German (4723075) in view of Richardson (5061841) as applied to claim 3 above, and further in view of Chen et al. (6747735 B2).

Regarding claims 10, 19, and 26, German and Richardson discloses the claimed invention except for wherein the optical element reflects a portion of the impinging laser beam and transmits a portion of the impinging beam. Chen et al. shows that it is known to provide an optical element (106) that reflects and transmits a portion of the impinging light for the production of broadband and narrowband light (col. 12, lines 54-63). Therefore it would have been obvious to someone of ordinary skill in the art at the time the invention was made to combine the device of German and Richardson with the optical element that reflects and

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transmits light of Chen et al. for the purpose of producing of broadband and narrowband light (col. 12, lines 54-63).

Regarding claims 11 and 27, Chen et al. discloses, in figure 3, a beam dump (108), and wherein a transmitted beam, transmitted through the optical element (106), is directed into a beam dump (108) (col. 12, lines 55-63).

Regarding claim 12, Chen et al. discloses, in figure 3, wherein the beam dump (108) is provided on a rear side of the optical element (106).

Regarding claim 13, Chen et al. discloses, in figure 3, wherein the beam dump (108) is mechanically separate from the optical element (106).

Regarding claims 15 and 28, Chen et al. discloses wherein the mirror has a dichroic coating, which reflects impinging ultraviolet radiation and transmits impinging visible and infrared radiation (col. 12, lines 48-63).

Regarding claim 20, German discloses an optical element (M) mounted onto the holder (32) but does not specifically disclose the optical element being glued to the holder. It would have been obvious to use glue to mount the optical element in the holder for the purpose of securing the optical element in a determined position; wherein the holder (20) has an outer edge upon which the optical element abuts but does not specifically disclose a depression in its center filled with adhesive. However, it would have been obvious to fill the center with an adhesive for the purpose of retaining the optical element in the holder; It would have been obvious to make the optical element project over the holder, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art (In re Rose, 105 USPQ 237, (CCPA 1955)). It would

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have been obvious to one of ordinary skill in the art at the time the invention was made make the optical element project over the holder for the purpose an easier accessibility to impinge the laser onto the optical element. German also discloses wherein the optical element is a mirror (col.4, lines 50-55) except for the laser beam impinging on the optical element at an inclination angle of approximately 45° . Richardson discloses the laser beam impinging on the optical element at an inclination angle of approximately 45° (col. 11, line 62). German and Richardson discloses the claimed invention except for wherein the optical element reflects a portion of the impinging laser beam and transmits a portion of the impinging beam, wherein a transmitted beam, transmitted through the optical element, is directed into a beam dump, and wherein the beam dump (108) is provided on a rear side of the optical element (106). Chen et al. shows that it is known to provide an optical element (106) that reflects and transmits a portion of the impinging light for the production of broadband and narrowband light (col. 12, lines 54-63), wherein a transmitted beam, transmitted through the optical element (106), is directed into a beam dump (108) (col. 12, lines 55-63), wherein the beam dump (108) is provided on a rear side of the optical element (106). Chen et al. also discloses wherein the mirror has a dichroic coating, which reflects impinging ultraviolet radiation and transmits impinging visible and infrared radiation (col. 12, lines 48-63). Therefore it would have been obvious to someone of ordinary skill in the art at the time the invention was made to combine the device of German and Richardson with the optical element that reflects and transmits light of Chen et al. for the purpose of producing of broadband and narrowband light (col. 12, lines 54-63).

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Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lee (6130490) discloses a stage assembly for precision movement in the x and y directions, especially adapted for use in electron beam lithography for holding a reticle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N Thomas whose telephone number is 571-272-2341. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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August 13, 2004



**RICKY MACK
PRIMARY EXAMINER**